

**DIVISION OF ENVIRONMENTAL HEALTH
SOLID WASTE PROGRAM
555 CORDOVA STREET
ANCHORAGE, AK 99501
<http://www.state.ak.us/dec/deh>**

**Telephone: (907) 269-7590
Fax: (907) 269-7655**

August 30, 2001

Certified Mail
7000 0520 0024 4825 5040

Mr. John Amundsen
Health Safety and Environment Manager
Forest Oil Corporation
310 K Street, Suite 700
Anchorage, AK 99501

RE: West McArthur River Drilling Waste Disposal Facility,
Solid Waste Permit # 0123-BA001

Dear Mr. Amundsen:

The Department of Environmental Conservation has reviewed your Waste Disposal Permit application for the disposal of drilling wastes at the West McArthur River Drilling Waste Disposal Facility. Based upon our evaluation, Solid Waste Disposal Permit No. 0123-BA001 (enclosed) is hereby granted subject to the conditions contained herein. The Department is issuing this permit in accordance with 18 AAC 60. This permit replaces Solid Waste Permit No. 9623-BA002, and expires August 30, 2006. Please note that the Department must receive a renewal application at least 30 days prior to that date for continued operation of the facility.

Any person who disagrees with any portion of this decision, may request an adjudicatory hearing in accordance with 18 AAC 15.200-310. The request should be mailed to the Commissioner of the Alaska Department of Environmental Conservation, 555 Cordova Avenue, Anchorage, AK 99501.

Mr. John Amundsen
Solid Waste Permit #0123-BA001
August 30, 2001
Page 2 of 2

Also, please send a copy of the request to the undersigned at the above address. Please remember that even if an adjudicatory hearing has been requested and granted, all permit conditions remain in full force and effect during the process. Failure to submit a hearing request within thirty (30) days of receipt of this letter shall constitute a waiver of that person's right to judicial review of this decision.

Sincerely,

Leslie F. Simmons
Solid Waste Program Coordinator
Southcentral and Western Alaska

Enclosure: Permit #0123-BA001

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL HEALTH
SOLID WASTE PROGRAM
555 CORDOVA STREET
ANCHORAGE, ALASKA 99501

DRILLING WASTE DISPOSAL FACILITY PERMIT

PERMIT NO. 0123-BA001

DATE ISSUED: August 30, 2001

This permit renewal is issued to Forest Oil Corporation for the management and operation of the West McArthur River Unit Drilling Waste Disposal Facility, located within Section 16, Township 8 North, Range 14 West, Seward Meridian. This facility serves the oil and gas exploration and production activities in the West McArthur River Unit. This permit renews Solid Waste Disposal Permit No. 9623-BA001 and is granted subject to the conditions contained in the permit.

This permit is issued under provisions of Alaska Statutes 46.03, the Alaska Administrative Code as amended or revised, and other applicable State laws and regulations.

This permit is effective on issuance and expires: August 30, 2006. The Department may terminate or modify this permit in accordance with AS 46.03.120.

Leslie F. Simmons
Solid Waste Program Coordinator
Southcentral and Western Alaska

**SOLID WASTE DISPOSAL PERMIT
FOREST OIL CORPORATION
WEST MCARTHUR RIVER UNIT DRILLING WASTE DISPOSAL FACILITY**

SPECIFIC CONDITIONS:

A. Application Compliance

1. This permit is based on application renewal materials dated July 9, 2001 and July 23, 2001, and supplemental documentation submitted in 1997 when Permit No. 9623-BA001 was transferred to Forest Oil (Forceenergy). The Permittee must comply with the designs and plans in this documentation, unless modified in this permit, and must comply with the following permit conditions. Any request for additional modifications shall be processed by a permit amendment.

B. Site Preparation

1. Signs

The Permittee shall install and maintain a readable sign at the facility entrance, which identifies the following information:

- a. Name of the facility and the Permittee;
- b. Emergency telephone numbers;
- c. Type of waste disposed of at the facility; and
- d. Specification that general camp waste and hazardous waste are prohibited.

2. Fencing/Surface Use

The Permittee shall install and maintain a fence around the drilling waste disposal cell(s) to restrict access by unauthorized persons and wildlife. The land surface over closed cells must be protected from any use that would compress or damage the gravel/soil cover or liner capping material. Heavy equipment may not be stored on or driven across any portion of a closed cell except to place the cover material.

3. Surface Water Quality Control

The Permittee shall:

- a. Construct and maintain diversion structures (ditches or berms) and surface grading as needed to prevent surface water from flowing over, into or through a disposal cell; and
- b. Control drainage from the facility to prevent a violation of water quality standards listed in 18 AAC 70.

C. Disposal Cell Development

The Permittee shall:

1. Notify in writing the ADEC, Anchorage Solid Waste Program Office at least thirty (30) days before a new disposal cell is constructed at the facility.
2. Ensure a minimum horizontal separation distance of 100 feet from a disposal cell to any surface water body or private drinking water well, and 200 feet to any public drinking water well.
3. Ensure that the inner cell walls are constructed no steeper than a slope of two foot horizontal to one foot vertical (2:1).
4. Prepare the internal disposal cell walls and bottom of the disposal cell as specified by the liner's manufacturer, and provide documentation to the Department that the installation specifications have been satisfied.
5. Double-line the interior of all new cells installed after issuance of Permit No. 0123-BA001. The liner system shall include lining the interior of each new cell using two layers of a flexible membrane liner, as described in the application, or one layer of flexible membrane covering a layer of bentonite, in order to prevent the migration of pollutants from the facility.
6. All liner systems must be:
 - a. Continuous over the pit side walls and bottom;
 - b. Securely anchored to prevent slippage into the pit;
 - c. Designed and installed so that the integrity of the liner is maintained during all phases of disposal and closure;
 - d. Designed and installed so that no erosion or other deterioration of the liner results from the placement of waste into the cell;
 - e. Protected from damage from frost action and other freeze/thaw effects; and
 - f. Resistant to, and compatible with, hydrocarbon and drill mud waste.
7. Install the fluid collection system prior to any waste deposition into a cell.

8. A leak detection system shall be installed beneath any new cells installed after issuance of Permit No. 0123-BA001. The system shall allow for sampling of any liquids present between the liners, and beneath the lower liner.

D. Facility Operation

1. Waste Disposal

The Permittee shall:

- a. Limit the disposal of waste to drilling wastes associated with the exploration, development, and production of crude oil or natural gas, including drilling muds, cuttings, hydrocarbons, brine, acid, sand and emulsions or mixtures of fluids produced from and unique to the operation or maintenance of a well, whether naturally occurring or added for the operation or productivity of the well. Drilling wastes includes only wastes described in this paragraph which are derived intrinsically from primary field operations, produced from a well, and removed at the drill site or removed at a crude oil production facility by crude oil or waste water treatment process before custody transfer of the crude oil; drilling wastes do not include spent solvents and oils from equipment maintenance activities, discarded chemical products, or fuels.
- b. Ensure that wastes are deposited in a manner that will not damage the impermeability of the liner, or otherwise jeopardize its integrity.

2. Temporary Closure of a Disposal Cell.

The Permittee shall:

- a. Unless otherwise approved by the Department ensure a temporary cover is applied to a waste disposal cell within 90 days:
 - i. After disposal cell capacity is reached;
 - ii. If a period of one (1) year has transpired since the last deposition of waste into the cell; or
 - iii. If the cell is not likely to receive waste within a one (1) year time period.
- b. The temporary cover shall consist of an impermeable flexible membrane liner placed over the waste cell in conjunction with fluid management to prevent the ponding of water on top of the temporary cap.

- c. Cells in a temporary closure status must be permanently closed in accordance with Section G of this permit. This permanent closure will occur when the facility is closed or the permit expires.

3. Fluid Management

The Permittee shall:

- a. Remove all pumpable liquids from the disposal cell as soon as possible to prevent overtopping of fluids and dispose of the liquids in accordance with all applicable state laws and regulations; and
- b. Ensure that the disposal cells have a minimum two (2) feet of freeboard at all times prior to closure of the cell.

4. Hazardous and Other Prohibited Waste

The Permittee shall prohibit the disposal of liquid petroleum products. Oily wastes (such as used oil filters, shop rags, and absorbents), prohibited chemical waste, radioactive material, solvents, corrosives, lead-acid batteries, polychlorinated biphenyl (PCB) fluids, explosives, and any other hazardous waste defined and regulated under 40 CFR 261 are prohibited at the disposal facility. Report all spills or discharges of hazardous substances, which occur at facility as described in 18 AAC 75, Article 3, or as revised or amended.

5. Prohibition and Restrictions

The Permittee shall:

- a. Restrict the disposal of waste to only that which is approved; and
- b. Ensure that the lined disposal cell does not cause a discharge of pollutants to the surface of the land or into surface waters of the State.

E. Monitoring

1. Visual Monitoring

The Permittee shall:

- a. Ensure that a person who is familiar with the requirements of this permit and with the applicable requirements of the Solid Waste Management Regulations, 18 AAC 60, conduct a visual inspection of the waste disposal cells at least once per month. A written record must be maintained of each

inspection. These records must be made available to the Department upon request and must be kept in the operating record for the facility.

This program will detect and document:

- i. Damage or signs of potential damage to any component of the facility from but not limited to: settlement, ponding, leakage, thermal instability, frost action, erosion, or operations at the facility;
 - ii. Damage to the structural integrity of a containment structure, retaining wall, erosion control, or diversion structure;
 - iii. Damage to the above-grade portions of groundwater monitoring devices;
 - iv. Any escape of waste, leachate or any unauthorized waste disposal;
 - v. Slippage of a waste disposal cell liner or damage to its anchor;
 - vi. Signs of fire or combustion in the waste cell;
 - vii. Evidence of death or stress to fish, wildlife, or vegetation that might be caused by the facility; and
 - viii. Violations of permit conditions or requirements of 18 AAC 60.
- b. Upon noticing any permit violation or damage to the facility, immediately notify the ADEC Solid Waste Program Office and initiate any corrective action necessary.

2. Groundwater Monitoring

The Permittee shall:

- a. Conduct routine annual detection monitoring each September for the groundwater monitoring parameters listed in Appendix A of this permit at all six (6) groundwater monitoring wells.
- b. Ensure that the monitoring well(s) are protected from damage and contamination, and that they are locked. Visually inspect each well before sampling is conducted to assess if the well is intact and has no indications of damage or aging that would compromise the sample quality.

- c. Submit copies of all groundwater monitoring test results and visual inspection field notes for each monitoring well to the Department within thirty (30) days from receipt of the laboratory analyses of groundwater samples.
- d. Ensure that groundwater samples are collected by a qualified sampler according to the Department approved Quality Assurance Program Plan (QAPP) or Quality Assurance/Quality Control Plan (QAQC) and that groundwater monitoring procedures include sampling and analytical methods that accurately measure hazardous constituents and other monitoring parameters in groundwater samples.

3. Leak Detection Monitoring

The Permittee shall, for any new cells opened after the issuance of Permit No. 0123-BA001:

- a. Conduct water monitoring from detection points located between the liners and below the bottom liner for the parameters listed in Appendix A annually; and
- b. Ensure that water samples are collected by a qualified sampler with a Department approved Quality Assurance Program Plan (QAPP) or Quality Assurance/Quality Control Plan (QAQC).

4. Assessment Monitoring and Corrective Action

The Permittee shall:

- a. At the request of the Department, sample and analyze any surface water and/or groundwater if circumstances or evidence indicate that contamination has occurred.
- b. For purposes of this permit, contamination of surface water and/or groundwater shall be deemed a violation when surface water and/or groundwater contaminant levels exceed those levels specified in 18 AAC 70 (Water Quality Standards) except those parameters documented as having natural background levels already exceeding these limits. Indications of contamination may include, but are not limited to:
 - i. A sudden, abrupt, or significant increase in any one, or more, pollutants listed in 40 CFR Part 258, Appendix II, which are attributed to site operations.

- ii. A determination that there is a statistically significant increase over background for one or more of the constituents monitored.
 - c. Submit copies of any assessment monitoring test results to the Department within thirty (30) days from receipt of the laboratory analyses.
 - d. If any violation of a permit condition, State regulation, or structural damage to the facility or a monitoring device, is observed during visual monitoring or during a Department inspection, take appropriate corrective action to correct the violation or damage, prevent the escape of waste or leachate, and clean up any improper waste disposal.
 - e. If contamination is indicated by the leak detection program, groundwater monitoring program, or contingency monitoring, the Permittee shall initiate corrective action as outlined in the Solid Waste Management Regulations, 18 AAC 60.820, perform all other actions deemed necessary by the Department for compliance with 18 AAC 60; and
 - f. Within 14 days after making the determination that groundwater contamination has occurred, place a notice in the operating record indicating which constituents have statistically significant changes from background levels, and notify the department that this notice was placed in the operating record.
5. A containment structure must be closed as required by 18 AAC 60.430(e), or reconstructed to meet the standards of 18 AAC 60.430(c), within one year after detecting a violation of the water quality standards at the point of compliance, the groundwater monitoring wells surrounding the facility.

F. Reporting and Record Keeping

The Permittee shall subject to the permit requirements of this chapter maintain an operating record. The record must be retained at a location that is readily accessible for Department review and by employees working at the facility. The record must consist of:

- 1. The permit application and the permit;
- 2. Inspection records, training procedures, and notification procedures if required by 18 AAC 60.240;
- 3. Any demonstration, certification, finding, monitoring, testing, or analytical data required by 18 AAC 60.800 – 18 AAC 60.860;

4. Any permit or record required under the Clean Water Act as that Act applies to leachate and storm water discharges;
5. Financial assurance documentation if required under 18 AAC 60.265;
6. The operating plan required in 18 AAC 60.210(b)(9); and
7. As-built drawings of the landfill, and any other documents required by this chapter to be kept in the operating record.

G. Facility Closure

The Permittee shall:

1. Notify, in writing, the Department's Anchorage Solid Waste Program at least thirty (30) days before each cell is permanently closed.
2. Ensure their closure activities are inspected by a third party, or supervised by the Permittee or representative familiar with the closure requirements of each cell. Written closure verification in the form of a notarized statement must be signed by the Permittee and submitted to the Department within 30 days of the final closure action. This closure verification must include:
 - a. A statement verifying that the cell was closed in accordance with the cell closure requirements of this permit, the date(s) the capping and closure activity took place, and the signature(s) of person(s) who supervised or performed the closure activity certifying that the information provided is true.
3. Ensure that all pumpable liquids are removed from the disposal cell and disposed of in accordance with all applicable state laws and regulations.
4. Stabilize the waste material, if necessary, to ensure that the contents of the disposal cell are of sufficient compressive strength to support a cap and maintain the proposed final cover design contour.
5. Ensure that construction of the final cover system, as specified in the application, is completed within ninety (90) days after the last waste is deposited into each cell.
6. Ensure the final cover/capping is at least 24 inches thick and composed of soil or another material approved by the department.
7. Ensure that final cover material and drainage control structures are graded and maintained to prevent ponding and erosion of closed cells.

8. Develop a vegetative cover within the first growing season after completion of final cover construction of each cell.
9. Once all disposal cells are permanently closed, prepare a survey as-built or record drawing showing the location of the waste cells and estimated volume of waste deposited. File those records with the State Land Records office and submit a copy to the Department's Anchorage Solid Waste Program Office within sixty (60) days after the final closure of the site.

H. Post-Closure Care and Monitoring

The Permittee shall:

1. Maintain the integrity and effectiveness of the final cover, slopes, vegetative cover, and drainage structures, including making repairs as necessary to correct the effects of settlement, subsidence, ponding, erosion, frost action, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover.
2. Continue groundwater monitoring annually, during the month of September, for five (5) years after the facility is closed, or longer if the Department determines that special circumstances require such monitoring.
3. Continue visual monitoring inspections of the facility annually, during the month of September, for five (5) years after the facility is closed, or longer if the Department determines that special circumstances require such monitoring.
4. Submit a copy of the annual groundwater monitoring and visual inspection reports to the Anchorage Solid Waste Program Office of the Department within thirty (30) days after receipt of laboratory analyses.
5. Conduct a contingency monitoring program, as specified in 18 AAC 60.860, if deemed necessary by the Department.

I. Violation and Enforcement

1. Non-compliance with any section of this permit constitutes a violation of the conditions of this permit.
2. Pollution, as defined in AS 46.03.900, resulting from the operation of this permitted facility, constitutes a violation of this permit.

3. A violation of any condition of this permit may result in the imposition of civil penalties in accordance with AS 46.03.760 and/or criminal penalties in accordance with AS 46.03.790. Additionally, the Permittee may be required to expand monitoring, evaluate impacts, and provide restoration at the site.

GENERAL CONDITIONS:

A. Access and Inspection

The Department's representatives shall be allowed access to the Permittee's facilities to conduct scheduled or unscheduled inspections or tests to determine compliance with this permit and State laws and regulations.

B. Availability of Records

Except for information related to confidential processes or methods of manufacture, all application materials and records and reports submitted in accordance with the terms of this permit shall be available for public inspection ant the Department's Anchorage Solid Waste Program Office.

C. Location of Permit and Application

The Permittee shall maintain a copy of this permit and facility plans at the disposal facility or, if that is not feasible, at the Permittee's or operator's place of business.

D. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the Permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond his control, including but not limited to accidents, equipment breakdowns, or labor dispute.

E. Adverse Impacts

The Permittee shall take all necessary means to minimize any adverse impact to the receiving waters or lands resulting from a violation or noncompliance with any limitations specified in this permit, including any additional monitoring needed to determine the nature and impact of the activity in noncompliance. The Permittee shall clean up and restore all areas adversely impacted by the noncompliance.

F. Cultural or Paleontological Resources

Should cultural or paleontological resources be discovered as a result of this activity, work which would disturb such resources is to be stopped, and the Office of History and Archaeology, Division of Parks and Outdoor Recreation, Department of Natural Resources, is to be notified immediately (907) 269-8721.

G. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, nor does it authorize any damage to private property.

H. Modifications or Changes

This permit authorizes only that operation specified in the application and permit. Any alteration, installation, expansion or modification which was not submitted as a component of the permitted facility plan will require a written plan approval or permit amendment prior to implementation. Any expansion, modification, or other change in a facility process or operation which may result in an increase in emissions or discharges or may cause other detrimental environmental impacts from the Permittee's facility requires a new permit.

I. Applications for Permit Renewal, Amendment or Plan Approval

Application for a renewal of, or amendment to, a permit will be treated in the same manner as the initial application, except that public notice or hearing may not be required for applications for renewal or amendment. Application for renewal, amendment, or plan approval must be made no later than 30 days before the expiration of the permit or the planned effective date of the amendment or change.

J. Transfers

This Department reserves the sole discretion to transfer this permit. The Permittee may request to transfer this permit to another proposed Permittee. The written request must include a certified signed affidavit from the proposed new Permittee stating that they accept this permit in its entirety. The Permittee is responsible to insure that all terms and conditions of the permit are met until the transfer is approved. Transfer of the permit is only valid when written approval has been received from the Department. Should operation of the facility be contracted or a change in contractors is made, the new contractor shall be notified of the existence of the permit and its conditions.

K. Termination

This permit terminates upon the expiration date. The Department has the authority to terminate a permit upon 30 days written notice if the Department finds that there has been a violation of the conditions of the permit.

L. Pollution Prevention

In order to prevent and minimize present and future pollution, when making management decisions that affect waste generation, the Permittee shall consider the following order of priority options, as outlined in AS 46.06.021:

1. Waste source reduction;
2. Recycling of waste;
3. Waste treatment; and
4. Waste disposal.

APPENDIX A: MONITORING PARAMETERS

Table 1: Groundwater and Water Sampling Analytes

Matrix	Analyses	Constituents	Analytical Method	Comments
Water	Conductivity pH Temperature Water Level Turbidity		Field Tests	
Water	Total Recoverable Metals	Arsenic (As) Barium (Ba) Calcium (Ca) Chromium (Cr) Lead (Pb) Magnesium (Mg) Nickel (Ni) Sodium (Na) Zinc (Zn) Mercury (Hg)	EPA series 6000 or 7000	Digestion method may be any approved EPA method for total recoverable metals.
Water	Diesel Range Organics (DRO)	C ₁₀ -C ₂₈ Organics	AK102	
Water	Volatile Aromatic Compounds	<u>BTEX</u> Benzene Toluene Ethylbenzene Xylenes	EPA 8020	

Calcium and Magnesium are used to calculate hardness and have no water quality criteria under State Water Quality Standards 18 AAC 70. Calculations of several of the total recoverable metals water quality standards are based on hardness.